

LT

Work Order ID 77967

\*77967\*

Page 1

Item ID: D206-642-151

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Item Name: Replacement Skidtube

Stop \*NS2\*

Start Date: 22/12/2011 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 01/02/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: M.L.J

Date: 11/12/23 Tooling:

Date:

Run Start \*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D3804

A

IIN-D206-642

O

100

0.00

\*100\*

DOCUMENT CONTROL

DC

0.00

Document Control

Memo

Photocopy bluefile & type labels per PPP D206-642-151

CHG001

N/A

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

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Item ID: D206-642-151

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**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

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Item Name: Replacement Skidtube

Start Date: 22/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 01/02/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110 <b>*1.10*</b>	Skidtubes	0.00							
Skidtubes	Memo	0.00							
Skidtubes	1-Deburr Fwd edge of tube								
	2- Remove ridge on inside of Fwd edge of tube as per Dwg D3804								
	3-Weld Fwd Cap as per Dwg D3804. Use aluminum rod. Grind D2647 to fit as required.								
	Pick:								
	Qty Part Number Description Batch								
	A/R Aluminum Rod <u>M119712/M119785</u>								
	4-Grind weld flush to cap on top surface only.								
	5-Cut Aft end as per dwg D3804 from front of tube and Deburr								
	6-Remove inner indexing ridge on Aft end of skidtube as per Dwg D3804								
	7-Open holes for Aft end cap as per Dwg D3804 with #30 Drill Bit using DT8025.								
	8-Drill pilot holes using Dt8166 & DT8169D & DT9771.								
	9-Locate DT8732 from inner Aft saddle hole & 3rd crossbolt hole. Insert D3286-1 doubler using DT8732 & D206-642-241-T1, then locating doubler off of 3/16" holes, cleco DT8732 & doubler leaving DT8732 for added support.								
	10- Drill D3286-1 doubler rivet holes in tube using # 30 drill, spot drilling doubler at the same time.								

**3 SAD 12-01-05**

**786 12-01-06**

**3 SAD 12-01-06**

**DL 12/01/10**

W/O:		WORK ORDER CHANGES					
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Item Name: Replacement Skidtube

Start Date: 22/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 01/02/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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11-Working from the center out, drill # 30 holes into D3286-1 doubler. Cleco each hole as it is being drilled. Verify angle of holes to accommodate rivet heads.

12-Remove 3/16" cleco's only and open GHW holes to Ø0.500" as per Dwg D3804

13-Remove D3286-1 doublers, identify orientation, deburr, then attach them to the workorder

14-Remove indexing edge using DT8741 as per Dwg D3804

15-C'sink GHW rivet holes as per Dwg D3804

16- Open Aft cap hole #6.  
\*\*\*\*no wearplate holes for this skidtube\*\*\*\*

17-Deburr tube and blow out chips from inside the tube

120

QC6- Inspect dimensions to drawing

0.00

**\*120\***

QC

Memo

0.00

Quality Control

*De 12/01/10**Siz/01/10*

W/O:		WORK ORDER CHANGES					
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Reference:

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***  
Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Chemical Conversion Coat per QSI005 4.1	0.00							
<b>*140*</b>									
HandFinish	Memo	0.00				①		CE/0412-1-10	
Hand Finishing									
150	QC3- Inspect Part Finish	0.00							
<b>*150*</b>									
QC	Memo	0.00				①		SAD 12-01-10	
Quality Control									
160		0.00							
<b>*160*</b>									
Skidtubes	Skidtubes								
Skidtubes	Memo	0.00							
Skidtubes	1-Open holes to finished size as per Dwg D3804, (without cutting fluid)								
	2-C'sink crossbolt spacer holes as per Dwg D3804(without cutting fluid)								
	3-Deburr and blow out all chips from inside the tube								

12/01/10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Stop **\*NS2\***

Item Name: Replacement Skidtube

Start Date: 22/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 01/02/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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170

QC6- Inspect dimensions to drawing

0.00

**\*170\***

QC

Memo

0.00

Quality Control

*DP* 12-1-10

180

Skidtubes

0.00

**\*180\***

Skidtubes

Memo

0.00

Skidtubes

1-Locate, install and rivet doublers as per Dwg D3804. Micro-shave rivets as required

*DL* 12/01/10

2-Bond D2654-1 web in place as per QSI 015. Ensure holes line up. Allow 12

Hrs. cure time before cutting

Start Date: 12/01/10 Time: 5:57

Finish Date: 12-01-10 Time: 5:00

Pick:

Qty Part Number Description Batch

A/R Sikaflex-291 119508

Sikaflex expire date: 12/08/13

*DL* 12/01/10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**\*N900040100\***

Setup Start \*NS1\*

Stop \*NS2\*

**Cust Item ID:**

**Start Date:** 22/12/2011      **Start Qty:** 1.00

**\* 1 \***

**Required Date:** 01/02/2012      **Req'd Qty:** 1.00

**\* 1 \***

**Customer:**

**Reference:**

**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

### Operation Description

### Set Up/ Run Hours

Tool ID	Tool #	Plan Code
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Accept Qty	Reject Qty	Reject Number	Insp. Stamp

190

QC5- Inspect part completeness to step on W/O

0.00

**\*190\***

QC

## Memo

0.00

## Quality Control

1 ✓ BE 12-01-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Setup Start \*NS1\*

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Item Name: Replacement Skidtube

Stop \*NS2\*

Start Date: 22/12/2011 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 01/02/2012 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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200

0.00

\*2000\*

Skidtubes

Skidtubes

0.00

Memo

1-remove alodine from around hole and prepare for welding

2-Prep per QSI 005 and Insert D2649 crossbolt spacers. Weld as per QSI 004 and Dwg D3804. Remember to back drill each hole to 0.25" before welding the other side. Use aluminum rod.

Pick:

QtyPart NumberDescriptionBatch

A/RAluminum Rod M119785

3-Grind welds flush as per Dwg D3804.

4-Using DT8733, insert (2) D3286-3 spacers as per QSI 004 and Dwg D3804. Remember to back drill each hole to Ø0.402" before welding other side. Use SS rod as required.

A/RSS Rod NONE BE12-01-16

5-Counterbore 5/16" x 0.750" deep except 7th hole from Aft end as per Dwg D3804. Deburr

3 BE12-01-12

BE12/01/13

DD 12-1-17

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	HandFinishing	0.00							
<b>*210*</b>									
HandFinish	Memo	0.00							
Hand Finishing	Install D2680-041 Nut Plate as per Dwg D3804								
215	QC9- Inspect visual per QSI004- Fusion Welds	0.00							
<b>*215*</b>									
QC	Memo	0.00							
Quality Control									
220	QC10- Inspect visual per QSI004- ground welds	0.00							
<b>*220*</b>									
QC	Memo	0.00							
Quality Control									

12/01/14

12.01.17

8/12/17

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230 <b>*230*</b> QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00 0.00							
240 <b>*240*</b> HandFinish Hand Finishing	Pressure Wash per QSI005 4.3  Memo	0.00 0.00							
250 <b>*250*</b> Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum  Memo	0.00 0.00							

START TIME:  
OVEN TEMPERATURE:  
FINISH TIME:

8-50  
3200 F  
9-20

12/01/18

12/01/18

W119480

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
260	QC3- Inspect Part Finish	0.00							
<b>*260*</b>									
QC	Memo	0.00							
Quality Control	LH								
270	HandFinishing	0.00							
<b>*270*</b>									
HandFinish	Memo	0.00							
Hand Finishing	1-Install D2651-3 O-Rings on D2651-1 plugs with Petroleum Jelly and install plugs as per Dwg D3804. Clean excess adhesive.								

1 12-1-23  
 1 12-1-23

W/O:		WORK ORDER CHANGES					
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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
280	HandFinishing	0.00							
<b>*280*</b>									
HandFinish	Memo	0.00							
Hand Finishing	1-Install D2646 Aft Cap and seal with Sikaflex. Clean excess adhesive A/RSikaflex-291 <i>12/23/11 11:00</i> Sikaflex expire date: <i>12-8</i>								
	2- Install wearplate as per dwg								
	2-Wing Walk as per Dwg D3804 and QSI 005 4.4 Batch: <i>12/23</i>								
290	QC3- Inspect Part Finish	0.00							
<b>*290*</b>									
QC	Memo	0.00							
Quality Control									

*8 12/11/23*

*1 15K 12-1-23*

W/O:		WORK ORDER CHANGES					
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Required Date: 01/02/2012 Req'd Qty: 1.00 **\*1\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
300 <b>*300*</b> QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00 0.00		8 12/11/123					
310 <b>*310*</b> Packaging Packaging Packaging	Packaging  Memo Identify and pack for shipping as per PPP D206-642-151 Location: _____ PPP Rev: _____	0.00 0.00		PP 78 645					
320 <b>*320*</b> QC Quality Control	QC21- Final Inspection - Work Order Release  Memo	0.00 0.00							

12/2/12  
12/2/13  
12-02-2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

December-23-11 10:29:30 AM

Page 1

Work Order ID: 77967

**\*77967\***

Parent Item: D206-642-151

**\*D206-642-151\***

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP REV:A 10.12.08 PER IIN REV.N DD VERF:EC  
REV:B 11.09.16 PER IIN REV.O DD VERF:EC

IPP

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2620

Manufactured

No

110

Each

13.0000

1

1

**\*D2620\***

Skidtube, 206 Skidtube

\*\*

SAD 12-01-05

Location

Loc Qty

Loc Code

LG

13

71616

3

71617

6

75470

2

75587

2

B76815

D2647

Manufactured

No

110

Each

183.0000

1

1

**\*D2647\***

Cap

\*\*

BG12-01-06

Location

Loc Qty

Loc Code

LG002

183

73826

74

75482

109

1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

December-23-11 10:29:30 AM

Work Order ID: 77967

\*77967\*

Parent Item: D206-642-151

\*D206-642-151\*

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

CR3212-4-04

Purchased

No

180

Each

12,557.00

52

52

\*CR3212-4-04\*

Cherry Rivet

\*\*

OK 12/01/10

Location

Loc Qty

Loc Code

ST331

2567

116471

78

117816

3

118686

1

118840

16

119017

2459

119075

10

st510

9990

119075

9990

(53)

D2654-1

Manufactured

No

180

Each

0.0000

1

1

\*D2654-1\*

Web

76757

\*\*

OK 12/01/10

D3286-1

Manufactured

No

180

Each

178.0000

2

2

\*D3286-1\*

Doubler

\*\*

OK 12/01/10

Location

Loc Qty

Loc Code

LG002

178

74872

6

75484

54

(2)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Page 3

December-23-11 10:29:30 AM

Work Order ID: 77967

**\*77967\***

Parent Item: D206-642-151

**\*D206-642-151\***

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

D2649 Manufactured No

200 Each 634.0000 19 19

**\*D2649\***

Cross Bolt Spacer

\*\*

BE 12-01-12  
B77574 19

Location	Loc Qty	Loc Code
LG001	634	
65317	1	
68224	2	
68507	11	
71355	2	
72704	2	
72841	11	
73390	8	
73857	21	
73858	53	
73859	4	
73860	4	
76793	515	

D3286-3 Manufactured No

200 Each 18.0000 2 2

**\*D3286-3\***

Spacer

\*\*

BE 12-01-16  
B76773 2

Location	Loc Qty	Loc Code
LG001	1	
74117	1	
LG002	17	
75483	17	

D2680-041 Manufactured No

210 Each 64.0000 1 1

**\*D2680-041\***

Nut Plate

\*\*

1 B 12/01/14

Location	Loc Qty	Loc Code
ST020	64	
75479	64	

December-23-11 10:29:30 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

December-23-11 10:29:30 AM

Work Order ID: 77967

\*77967\*

Parent Item: D206-642-151

\*D206-642-151\*

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

CR3212-4-03

Purchased

No

210

Each

1,762.000

2

2

\*CR3212-4-03\*

Cherry Rivet

\*\*

(2) 12/01/14

Location

Loc Qty

Loc Code

FP002

768

114859

768

ST331

994

110139

2

119017

992

AN960JD416

NAS1149D0463J

Purchased

No

210

Each

0.0000

1

1

\*AN960JD416\*

Washer

\*\*

1118384(41) 12/02/07

CCR264SS3-3

Purchased

No

210

Each

993.0000

2

2

\*CCR264SS3-3\*

Cherry Rivet

\*\*

(2) 12/01/14

Location

Loc Qty

Loc Code

ST331

993

113973

2

117849

147

119017

844

MS27039-4-06

Purchased

No

210

Each

323.0000

1

1

\*MS27039-4-06\*

Screw

\*\*

12-1-03

Location

Loc Qty

Loc Code

ST292

323

119075

323

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Page 5

December-23-11 10:29:30 AM

Work Order ID: 77967

**\*77967\***

Parent Item: D206-642-151

**\*D206-642-151\***

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

D2651-1      Manufactured      No      270      Each      357.0000      6      6

**\*D2651-1\***

Plug

\*\*

*BL 12-1-23.*

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	357	
57869	1	
66445	10	
69018	2	
70839	2	
71037	31	
73827 ✓	311	

D2651-3      Manufactured      No      270      Each      847.0000      6      6

**\*D2651-3\***

O-Ring

\*\*

*BL 12-1-23.*

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	847	
61962	12	
73828 ✓	835	

D3873-1      Manufactured      No      280      Each      611.0000      14      14

**\*D3873-1\***

Bushing

\*\*

*BL 12-1-23.*

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST088	611	
64760	1	
68247	4	
73829	19	
73830	2	
76792 ✓	585	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Page 6

December-23-11 10:29:30 AM

Work Order ID: 77967

**\*77967\***

Parent Item: D206-642-151

**\*D206-642-151\***

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

D2646 Manufactured No

280 Each 153.0000 1 1

**\*D2646\***

Aft Cap

\*\*

*BL 12-1-23.*

Location

Loc Qty

Loc Code

FP002

153

62678

5

68280

5

70945

1

71038

4

71070

2

73294

1

73825 ✓

135

D3805-041 Manufactured No

280 Each 1.0000 1 1

**\*D3805-041\***

Wearplate Assembly Fwd, Low Gear

\*\*

*BL 12-1-23.*

Location

Loc Qty

Loc Code

FP001

1

75149

1

MS27039-1-08 Purchased No

280 Each 1,243.0000 2 2

**\*MS27039-1-08\***

Screw

\*\*

*BL 12-1-23*

Location

Loc Qty

Loc Code

ST291

1243

117423

77

118910

226

119075 ✓

440

119109

500

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Page 7

December-23-11 10:29:30 AM

Work Order ID: 77967

\*77967\*

Parent Item: D206-642-151

\*D206-642-151\*

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

MS21042L3

Purchased

No

280

Each

6,837.000

7

7

\*MS21042L3\*

\*\*

Nut

BL 12-1-23

## Location

## Loc Qty

## Loc Code

ST300

6837

117441

16

117885

32

118451

5

118927

3

119017 ✓

5988

119075

793

7.

D3805-045

Manufactured

No

280

Each

2.0000

1

1

\*D3805-045\*

\*\*

Wearplate Assembly Aft, Low Gear

BL 12-1-23.

## Location

## Loc Qty

## Loc Code

FP001

2

73817

1

74896

1

1

AN960JD10L

NAS1149D0332J ✓

Purchased

No

280

Each

0.0000

2

2

\*AN960JD10L \*

\*\*

Washer

2. BL 12-1-23.

AN3-37A

Purchased

No

280

Each

1,546.000

7

7

\*AN3-37A\*

\*\*

Bolt

BL 12-1-23.

## Location

## Loc Qty

## Loc Code

ST353

1546

117619 ✓

4

119086 ✓

1542

7.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Page 8

December-23-11 10:29:30 AM

Work Order ID: 77967

\*77967\*

Parent Item: D206-642-151

\*D206-642-151\*

Parent Item Name: Replacement Skidtube

Start Date: 22/12/2011

Required Date: 01/02/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0363J

Purchased

No

280

Each

2,252.000

7

7

\*NAS1149D0363.I\*

\*\*

OK 12-1-03.

Washer

## Location

## Loc Qty

## Loc Code

ST298

2252

117601

61

118077

1

118612

18

118968

137

119537

2035

7

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



ITEM	Qty -041	Qty -043	Part Number	Description
1	X		D3804-041	SKIDTUBE ASSEMBLY, 206 A/B LOW
2		X	D3804-043	SKIDTUBE ASSEMBLY, 206 A/B HIGH
5	1	1	D2600-1-160	EXTRUSION
6	1	1	D2646	AFT CAP
7	1	1	D2647	CAP
8	19	20	D2649	CROSS BOLT SPACER
9	6	8	D2651-1	PLUG
10	6	8	D2651-3	O-RING
11		1	D2654-3	WEB
12	1		D2654-1	WEB
13	1	1	D2680-041	NUT PLATE
14	2	2	D3286-1	DOUBLER
15	2	2	D3286-3	STUD
21	2	2	AN960JD10L	WASHER
22	1	1	AN960JD416	WASHER
23	2	2	CCR264SS3-3	RIVET
24	2	2	CR3212-4-03	RIVET
25	52	52	CR3212-4-04	RIVET
26	2	2	MS27039-1-08	SCREW
27	1	1	MS27039-4-06	SCREW

#### NOTES

- 1) MATERIAL: N/A
- 2) FINISH: -CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
-POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) BLACK ANTI-SKID PAINT AS INDICATED TO 0.5 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 7) IDENTIFICATION: NONE
- 8) WEIGHT: 12.5 lb
- 9) WELD PER DART QSI 004
- 10) BENDING: DAMAGE TOLERANCE ON FWD BEND:  
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- 11) BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015
- 12) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE)

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO. 779.67 M.C.5  
11/12/23

**RELEASED**  
09.03.03  
per ECN 09-538

A	NEW ISSUE	MB	08.07.07
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>qj</i>	<b>DART AEROSPACE USA, INC</b>	
DRAWN	<i>qj</i>	PORT HADLOCK, WA	
CHECKED	<i>qj</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>qj</i>	D3804	SHEET 1 OF 5
APPROVED	<i>qj</i>	TITLE	SCALE
DE APPR.	<i>qj</i>	SKIDTUBE ASSEMBLY, 206A/B	NTS
DATE	08.07.07	COPYRIGHT © 2008 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

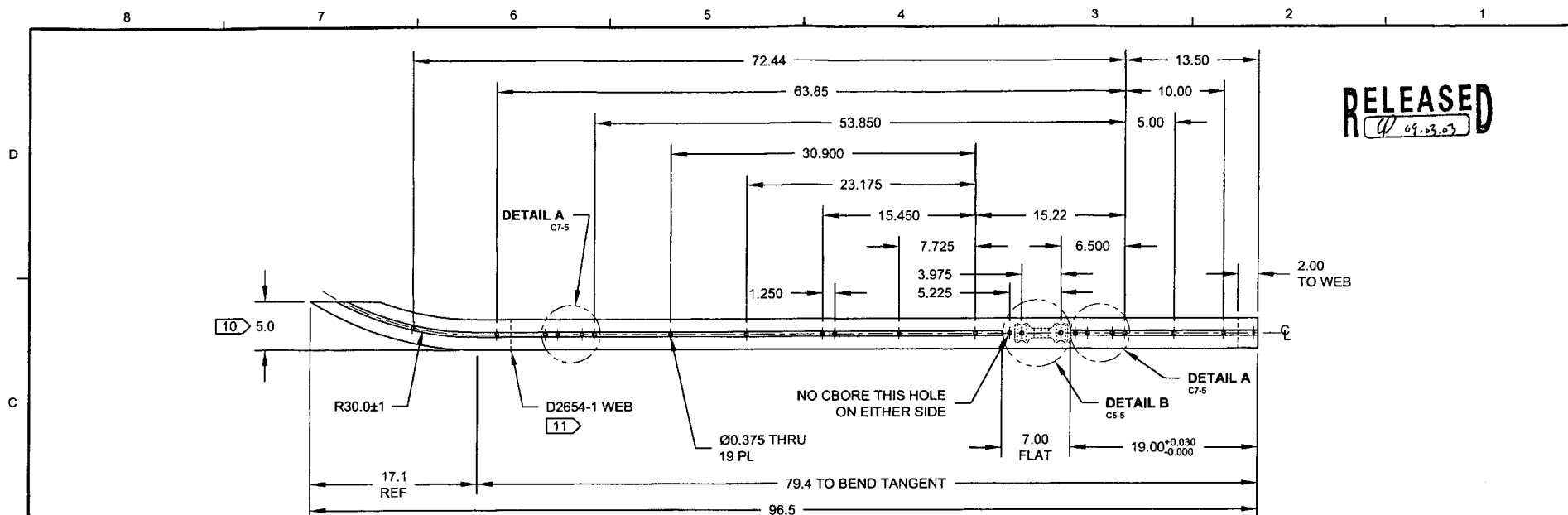
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

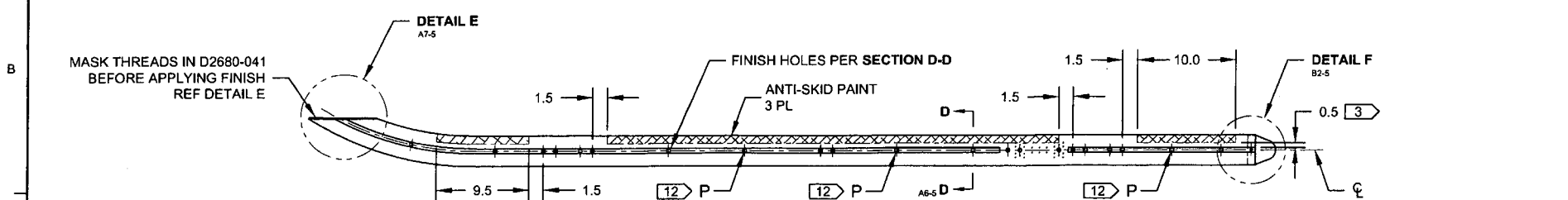
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

77967



**D3804-041 BENDING/DRILLING DETAIL**



### **D3804-041 ASSEMBLY/FINISHING DETAIL**

DESIGN	99	<b>DART AEROSPACE USA, INC</b>	
DRAWN	99	PORT HADLOCK, WA	
CHECKED	99	DRAWING NO.	REV. A
MFG. APPR.	99	D3804	SHEET 2 OF 6
APPROVED	99	TITLE	SCALE
DE APPR.	99	SKIUTUBE ASSEMBLY, 206A/B	NTS
DATE 08.07.07		COPYRIGHT © 2008 BY DART AEROSPACE USA, INC THIS DOCUMENT OR DRAWING IS UNCLASSIFIED UNLESS OTHERWISE SPECIFIED. IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIES OR COMMERCIALIZED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE USA, INC.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

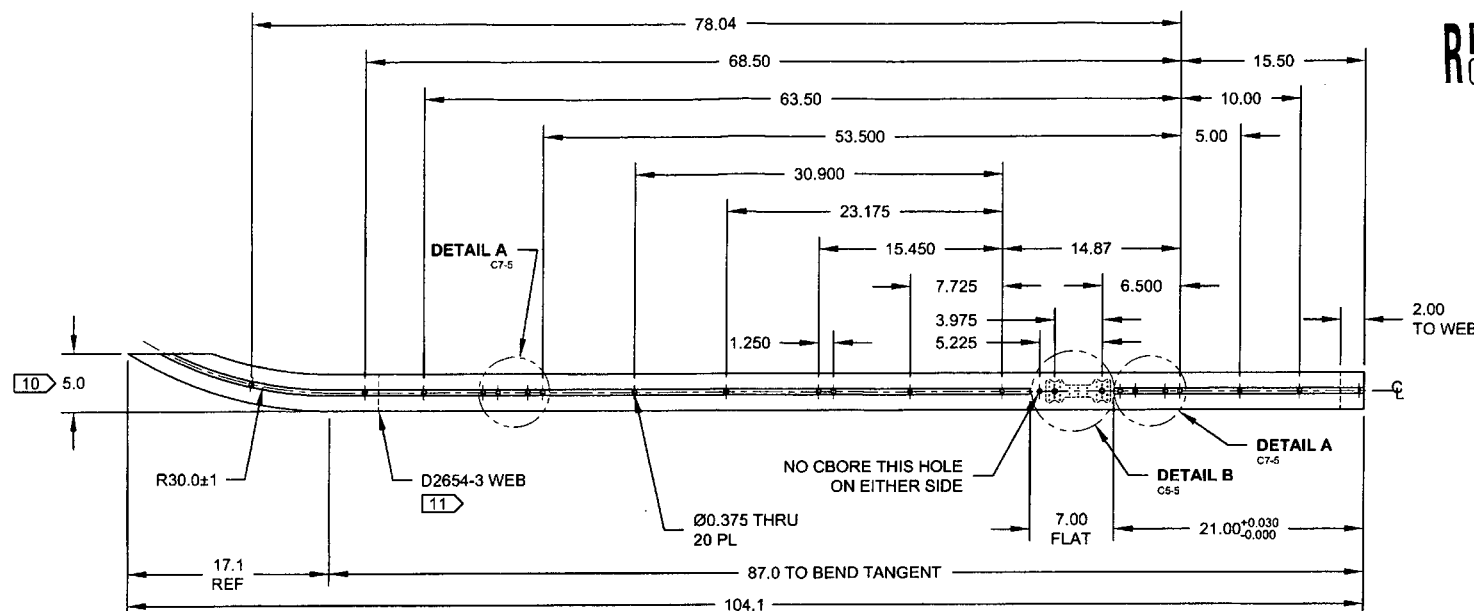
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

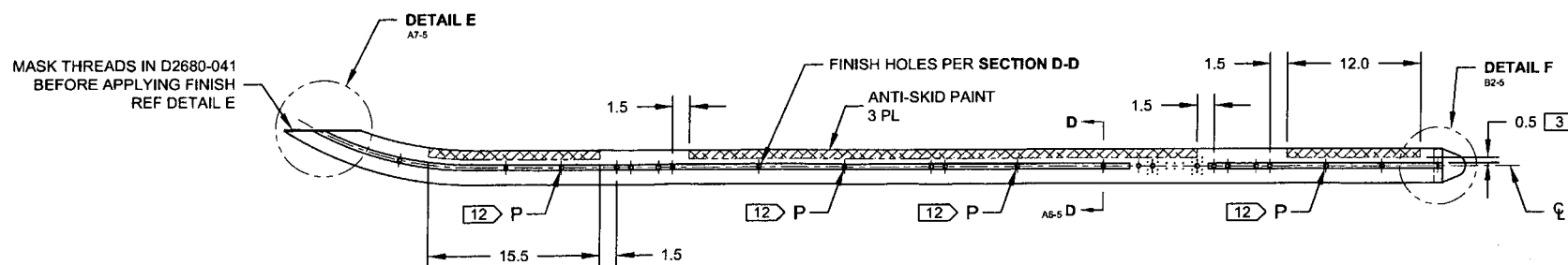
**NOTE:** Date & initial all entries

77967

RELEASED  
09.03.07



**D3804-043 BENDING/DRILLING DETAIL**



**D3804-043 ASSEMBLY/FINISHING DETAIL**

DESIGN	97	<b>DART AEROSPACE USA, INC</b>	
DRAWN	97	PORT HADLOCK, WA	
CHECKED	97	DRAWING NO.	REV. A
MFG. APPR.	97	D3804	SHEET 3 OF 5
APPROVED	97	TITLE	SCALE
DE APPR.	97	SKIDTUBE ASSEMBLY, 206A/B	NTS
DATE	08.07.07	<small>COPYRIGHT © 2008 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

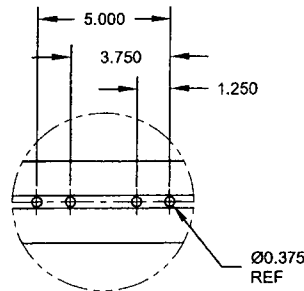
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

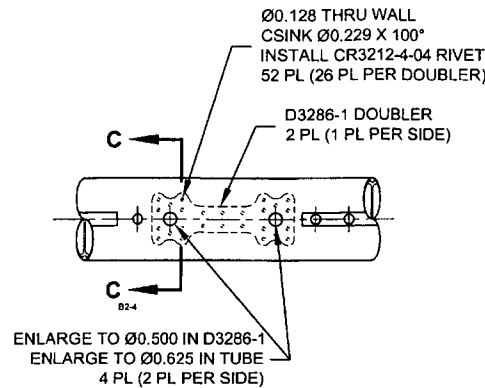
**NOTE:** Date & initial all entries

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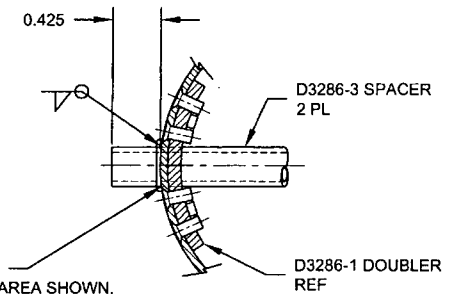
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UP 09.03.07



**DETAIL A**  
D6-2  
C2-2  
D6-3  
C2-3  
SCALE NONE

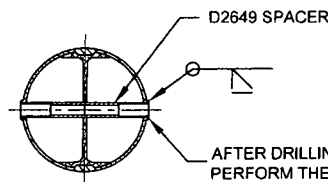


**DETAIL B**  
C3-2  
C3-3  
SCALE NONE



- TO INSTALL D3286-1/3:
1. GRIND OFF FLANGE IN AREA SHOWN, FLUSH WITH OUTSIDE SURFACE OF ROUND TUBE
  2. LOCATE & DRILL D3286-1 DOUBLER USING DT3286-1T1
  3. ENLARGE HOLES IN D3286-1 TO Ø0.500
  4. ENLARGE HOLES IN TUBE TO Ø0.625 AND CHAMFER HOLE 0.03 X 45°
  5. RIVET D3286-1 TO TUBE
  6. INSERT D3286-3 SPACER
  7. WELD IN PLACE AND GRIND FLUSH

**SECTION C-C** C6-4  
PARTIAL SECTION  
SCALE NONE



- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.375 HOLES ONLY:
1. CHAMFER HOLE 0.03 X 45°
  2. INSERT D2649 SPACER
  3. WELD INTO PLACE AND GRIND FLUSH
  4. CBORE TO Ø0.313 X 0.75 DP (EXCEPT WHERE INDICATED)

**SECTION D-D** A4-2  
A4-3  
FOR Ø0.375 HOLES ONLY  
SCALE NONE

DESIGN	91	<b>DART AEROSPACE USA, INC</b>	
DRAWN	J	PORT HADLOCK, WA	
CHECKED	91	DRAWING NO.	REV. A
MFG. APPR.	E	D3804	SHEET 4 OF 5
APPROVED	91	TITLE	SCALE
DE APPR.	H	SKIDTUBE ASSEMBLY, 206A/B	NTS
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

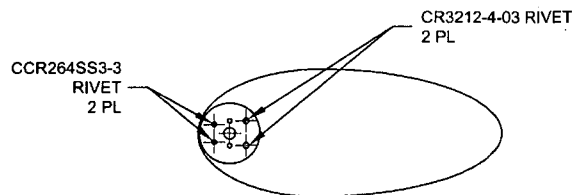
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

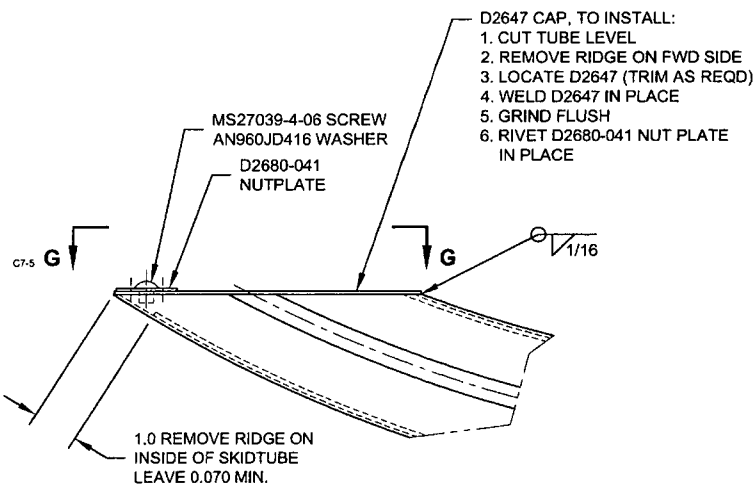


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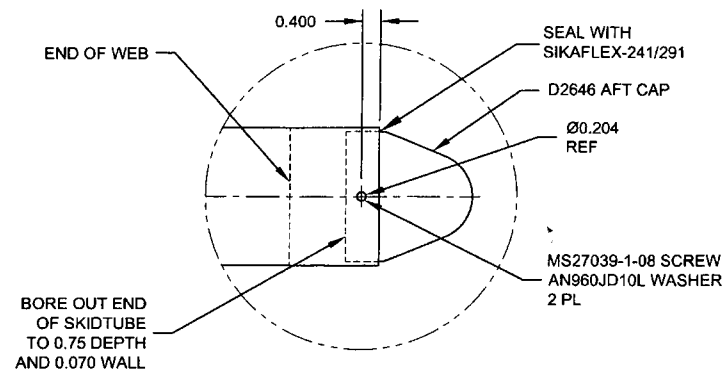
RELEASED  
97 09 03 03



**VIEW G-G**  
SCALE NONE A7-5



**DETAIL E**  
SCALE NONE B7-2 B7-3



**DETAIL F**  
SCALE NONE B2-2 B2-3

DESIGN	97	<b>DART AEROSPACE USA, INC</b>	
DRAWN	97	PORT HADLOCK, WA	
CHECKED	97	DRAWING NO.	REV. A
MFG. APPR.	97	D3804	SHEET 5 OF 5
APPROVED	97	TITLE	SCALE
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

NO. 278

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliot  
Job number: 766119  
Part number: 206-642-151  
Description: 206 skid tube  
Welding Process: Tig ☒ Mig ☐  
Base material: Aluminum  
Current: AC ☒ DC ☐

TEST REQUIREMENTS AND RESULTS

Visual: pass ☒ fail ☐  
Penetration: pass ☒ fail ☐

UNACCEPTABLE

Cracks: pass ☒ fail ☐  
Undercut: pass ☒ fail ☐  
Pin holes: pass ☒ fail ☐  
Overlap (cold lap): pass ☒ fail ☐  
Porosity (surface): pass ☒ fail ☐  
Coloration: pass ☒ fail ☐

Qualifier Pat Dunn Date of Test Coupon 11-12-20  
Welder Barclay Elliot Date of Test Coupon 11-12-20

The above named individual is qualified in accordance with AWS D17.1.2001 to weld